REMARKS

The above Amendments and these Remarks are submitted under 35 U.S.C. § 132 and 37 C.F.R. §§ 1.111 and 1.114 in response to the Office Action mailed March 7, 2007.

Summary of the Examiner's Action and Applicants' Response

The Examiner provisionally rejected Claim 129 on the ground of nonstatutory double patenting over Claim 24 of copending published application no. 2006/0031660 ("2006/0031660"). Claims 32 ,41, 42, 63, 70-72, 78, 79, and 84 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner rejected Claim 63 as being anticipated under 35 U.S.C. § 102(b) by Webb (U.S. Patent No. 4,760,525). Claims 1-5, 7-15, 17, 18, 20, 21, 23, 27-46, 48, 49, 51-58, 62-76, 78-85, 89-99, and 101- 128 were rejected under 35 U.S.C. § 103(a) as being obvious based on Wise (U.S. Patent No. 5,768,561) in view of Baxter (U.S. Patent No. 5,794,062). The Examiner has rejected Claims 16, 19, 22, 24-26, 47,50, 77, and 100 are rejected under 35 U.S.C. § 103(a) as being obvious based on Wise in view of Baxter and in view of Lee et al. (U. S. Patent No. 5,873,045). Claims 59-61 and 86-88 were rejected under 35 U.S.C. § 103(a) as being obvious based on Wise in view of Baxter and in view of Cohen et al. (U.S. Patent No. 6,005,943). The Examiner has rejected Claims 129-131 under 35 U.S.C. § 102(b) as being anticipated by Wise. Claims 132-143 were rejected under 35 U.S.C. § 103(a) as being obvious based on Wise in view of Baxter. Applicants respectfully traverse the rejections.

In this amendment, Applicants have canceled Claims 89-99, 101-114, and 129-143, without prejudice or disclaimer. Applicants have amended Claims 1, 3, 7, 8, 14, 20, 32, 38, 39, 45, 48, 49, 55, 56, 62, 63, 71, and 76. Claims 144 and 145 have been added. After entry of this amendment, Claims 1-5, 7-57, 59-80, 82-88, 115, 116, 118-121, 123-128, 144, and 145 will be pending.

Response to Rejection of Claim 129 on Nonstatutory Double Patenting Ground

The Examiner provisionally rejected Claim 129 on the ground of nonstatutory double patenting over Claim 24 of "2006/0031660". Applicants respectfully submit that a terminal disclaimer had previously been filed in this case which disclaimed the term which would extend beyond the term of U.S. Patent No. 6,986,021 ("the '021 patent"). 2006/0031660 is a continuation of the application no. 09/997987 which issued as the '021 patent. It is respectfully submitted that,

in accordance with 35 U.S.C. § 154, the term of any patent that would issue from "2006/0031660" would coincide with the patent term for the '021 patent in the terminal disclaimer. Applicants respectfully submit, therefore, that the terminal disclaimer previously filed in this case overcomes this rejection to Claim 129.

Response to Rejection of Claims 32, 41, 42, 63, 70-72, 78, 79, and 84 under 35 U.S.C. § 101

Claims 32 , 41, 42, 63, 70-72, 78, 79, and 84 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner stated regarding Claims 32 and 63 that:

> "Claims 32, 63 now recite at least a method for adaptive configuration of an integrated circuit. However, the detailed structure of the integrated circuit is not being recited in to the claim body. Furthermore, the structural relation among the computational elements is unclear. Therefore, the integrated circuit and the computations elements are read as a general arrangement of the units. As to the use of the routing elements, selectively routing data and the first subset of configuration information through the interconnection network to the first plurality of computational elements and selectively routing data and the second subset of configuration information through the interconnection network to the second plurality of computational elements to provide a selected operating mode of a plurality of operating modes. The configuration information and the selected operating modes are not the circuit itself. The practical application of the selectively routing the configuration information and data is unclear. The focus is not on the step taken to achieve a final result which is useful, tangible, and concrete, but rather a final result achieved which is useful, tangible, and concrete. No final result of selectively routing and switching the data and configuration information can be found. Therefore, it is directed to non-statutory subject matter. "
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> "Furthermore, Claims 32, 63 are not limited to tangible embodiments. In view of Applicant's disclosure, specification page 7, lines 1-3, 15, 31, the adaptive configuration of an integrated circuit is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., [wireless base station]) and intangible embodiments (e.g., [wireless link] [air interface]). See also page 9. line 31 [wireless interface], page 27, line 10 [download through other medium], page 27, lines 29,30 [wireless download]. As such, the claim is not limited to statutory subject matter and is therefore non-statutory. The invention is not restricted into the hardware. For example, the receiving and transmitting the configuration information and the routing of the data through the interconnect network could be done over the air interface, for example the wireless download, therefore, it is not concrete and tangible. The downloaded configuration information can be in the form of frequency waves transmitted in the air space, therefore, it is directed to a non-statutory subject matter."

In determining whether a claim produces a useful, tangible, and concrete result, "the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but

rather on whether the final result achieved by the claimed invention is 'useful, tangible, and concrete.'" M.P.E.P. § 2106 IV c, 2, (2). (Emphasis added).

The method claimed in Claim 32 includes receiving a first set of configuration information. The method claimed in Claim 63 includes both transmitting and receiving configuration information. As Applicants understand the rejection, the Examiner contends that the present specification describes embodiments where configuration information is downloaded via an air interface or a wireless interface in the form of "frequency waves" and therefore, Claims 32 and 63 are directed to non-statutory subject matter. The Examiner further states that "no final results of selectively routing and switching the data and configuration information can be found" Applicants respectfully disagree.

Applicants respectfully submit that the Examiner stated on page 8 of the Office Action that downloading configuration information, for example, is not concrete and tangible. Applicants respectfully submit that that, per M.P.E.P. § 2106, the focus in not on whether the individual steps taken, i.e., downloading configuration information, to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete". M.P.E.P. § 2106 IV c, 2, (2). (Emphasis added).

Applicants respectfully submit that one of the tangible, useful and concrete final results achieved by the claimed invention claimed in Claims 32 and 63 is a first plurality of computational elements configured for a first functional mode in response to a first subset of configuration information. It is respectfully submitted, therefore, that the final result achieved by the claimed invention of the methods claimed in Claims 32 and 63 is tangible, useful, and concrete. Applicants respectfully submit that Claims 41 and 42 depend from Claim 32 and provide a final result that is tangible, useful, and concrete for the same reasons as above for Claim 32.

Claim 71 has been amended to correct a typographical error so that it differs from Claim 72 and claims transmission through a wireless interface, similar to Claim 41. Applicants respectfully submit that: configuration information received through a wireless interface (Claims 41 and 71), configuration information received through a wireline interface (Claims 42 and 72), the method operable within a wireless transmitter (Claim 78), the method operable within a server (Claim 79). the method operable within a wireline transmitter (Claim 84), also have a final result that is tangible, useful, and concrete, for the reasons given above. For all of the above reasons, Applicants

respectfully submit that Claims 32 , 41, 42, 63, 70-72, 78, 79 and 84 are directed to statutory subject matter and otherwise satisfy 35 U.S.C. § 101.

Claim 1

Regarding Claim 1, Applicants respectfully submit that, similar to Claim 32 discussed above, one of the tangible, useful and concrete final results achieved by the claimed invention of the system of Claim 1 is a first plurality of computational elements configured for a first functional mode in response to a first subset of configuration information. Applicants respectfully submit, therefore, that the system of Claim 1 achieves a tangible, useful and concrete final result. Applicants have amended Claim 1 to remove the memory adapted to store a first set of configuration information and connected to the interconnection network. The memory element has been included in a new claim, Claim 144, which depends from Claim 1. For at least the above reasons, Applicants respectfully submit that Claim 1 is directed to statutory subject matter and otherwise satisfies 35 U.S.C. § 101.

Response to Rejection of Claim 63 under 35 U.S.C. § 102(b)

The Examiner rejected Claim 63 as being anticipated under 35 U.S.C. § 102(b) by Webb. The Examiner stated that:

"As to claim 63, Webb (4,760,525) taught at least: a) transmitting a first set of configuration information (see DATA2-DATA7 in fig.6), the first set of configuration information comprising a first subset of configuration information (DATA2, DATA3, DATA2, DATA4) and a second subset of configuration information (DATA5, DATA3, DATA6, DATA7); wherein when the first set of configuration information is received; using the routing elements (601,602), selectively routing data and the first subset of configuration information through the interconnection network (see fig.6) to the first plurality of computational elements (see ALU1 ALU2) and selectively routing data (see DATA) and the second subset of configuration information through the interconnection network to the second plurality of computational elements (ALU4 ALU3) to provide a selected operating mode of a plurality of operating modes; and using the switching elements (661,662) , configuring through the second level of the an interconnection network the first plurality of fixed and differing computational elements for a first functional mode (see the selection output odes (sic) RE1 RF and RG1 at MXB1 and MXB2 in fig.6) of a plurality of functional modes in response to the first subset of configuration information (see the selected input data at 661 and 662), and a second plurality of fixed and differing computational elements (ALU4 ALU3) for a second different functional mode of the plurality of functional modes (see output modes at RE1 RF and RG1 at MXB3 and MXB4) in response to the second subset of configuration information' (see input data at 663,664)."

Applicants have amended Claim 63 to further define the invention. Applicants have more clearly defined the interconnection network which has a first and second levels, i.e., multi-level. Claim 63 has been amended herein such that the selectively routing of data and the first (and second) subsets of configuration information, using routing elements, is through the first level of the interconnection network. The Examiner cited FIG. 6 in Webb as teaching the method of Claim 63. Applicants respectfully disagree. Applicants respectfully submit that, among other things, Webb does not teach or suggest an interconnection network, as claimed in Claim 63, that has a first level and a second level and having configurability at multiple levels, i.e., a multi-level interconnection network. Further regarding Webb, Applicants respectfully submit that Webb does not teach the method as claimed in Claim 63 having a first level of an interconnection network of an interconnection network, selectively routing data and configuration information, using routing elements, and, a second level of the interconnection network having switching elements for configuring computation elements in response to the configuration information, i.e., the configuration information routed through the first level of the interconnection network.

The Examiner stated in section 6 on page 3 of the final Office Action that a "nested or multi-tiered interconnection network is not being claimed, and unclaimed features cannot be used to overcome the prior art." Applicants respectfully submit that an interconnection network having configurability at multiple levels as claimed in Claim 63 would be categorized by one skilled in the art as a multi-level, multi-tier interconnection network. Further, Applicants respectfully submit Webb does not disclose this interconnection network, i.e., multi-level interconnection network, having a first level of interconnection network having routing elements and this separate second level of having switching elements, as claimed in Claim 63.

The Examiner identified DATA2-DATA7 in FIG. 6 in Webb as both a first set of configuration information and as DATA, i.e., ("configuration information (see DATA2-DATA7 ..") "selectively routing data" (see DATA)". Applicants respectfully submit that, as claimed in Claim 63, both data and configuration are selectively routed through the first level of the interconnection network. Applicants respectfully submit that Webb does not teach or suggest that DATA is configuration information, Webb merely teaches that changing the ALU function code, for instance, as a function of the processed data. (Col. 20, lines 64 – Col. 21, line 3). (Emphasis added).

Applicants respectfully submit, therefore, that Webb does not disclose an interconnection network for both the transfer of data and configuration information, as claimed in Claim 63.

Further, Applicants respectfully submit that Webb does not disclose the step of transmitting a first set of configuration information, as claimed in Claim 63. Moreover, even if the DATA identified by the Examiner were configuration information, which Applicants say that it is not, there is no teaching of transmitting configuration information, as claimed in Claim 63.

Further, Further, FIG. 6 in Webb depicts an embodiment of a "Pipelined Arithmetic Unit (PLAU) Custom Chip". (Col. 18, line 63 and Col. 19, lines 31-32). Applicants respectfully submit that Webb teaches that the PLAU has certain functions performed under micro-program control. (Col. 19, lines 10-15). Webb discloses "[f]unctional reconfigurability provides a function modification capability which is invaluable for optimizing the data processing speed; it provides the ability, for example, of changing the ALU function code or changing the multiplexer select code as a function of the processed data without the necessity for creating frequent program jumps or making multiple data passes under reconfigured ALU states." (Col. 20, line 64 – Col. 21, line 3). (Emphasis added). Thus, Applicants respectfully submit that Webb teaches programming using a pre-existing group of functions of an ALU using code, and does not teach or suggest the configurability, as claimed in Claim 63, wherein a first and second plurality of computational elements, in response to corresponding first and second subsets configuration information, are configured for different functional modes.

Further, Applicants respectfully submit that Webb teaches that the data for the PLAU passes through a fixed control network (see Col. 19, lines 20-21), and does not include the first and second levels of a multi-level interconnection network through which configuration information is routed and, using switching elements, to configure a plurality of computational elements, in response to the configuration information, for a functional mode, as claimed in Claim 63.

Further, Applicants respectfully submit that Webb does not teach routing elements of a first level of an interconnection network of a multi-level interconnection network, for selectively routing data and configuration information, as claimed in Claim 63. Applicants respectfully submit further that Webb does not teach switching configuring computation elements in response to the configuration information, i.e., the configuration information routed through the first level of the interconnection network, as claimed in Claim 63. Applicants respectfully submit that multiplexer 601 and multiplexer, 661 are not routing and switching elements, respectively, as claimed in Claim

63. Applicants respectfully submit that Examiner has also identified various hardware registers RE1, RG1, etc. in FIG. 6 in Webb (at the output of a multiplexer) as a functional mode. Applicants respectfully submit that Webb teaches having hardware registers at the output for holding data. (Col. 19, lines 32-48). Applicants respectfully submit that such hardware registers are not different functional modes, as claimed in Claim 63. Further, Applicants respectfully submit that Webb does not disclose the use, through configuring in response to configuration information, of different pluralities, i.e., different mixes or combinations, of computational elements for different functional modes, as claimed in Claim 63.

For all of the above reasons, Applicants respectfully submit that Webb does not teach the method as claimed in Claim 63.

Response to Rejection of Claims 1-5, 7-15, 17, 18, 20, 21, 23, 27-46, 48, 49, 51-58, 62-76, 78-85, 89-99, and 101- 128 under 35 U.S. C. § 103(a)

Claims 1-5, 7-15, 17, 18, 20, 21, 23, 27-46, 48, 49, 51-58, 62-76, 78-85, 89-99, and 101- 128 were rejected under 35 U.S.C. 103(a) as being obvious based on Wise in view of Baxter.

Claims 89-99 and 101-114 have been canceled herein.

Applicants respectfully submit that Wise and Baxter, either combined or singly, do not teach the method as claimed in Claim 1 having a first level of an interconnection network of a multi-level interconnection network, routing elements adapted for selectively routing data and the first and second subsets of configuration information to corresponding pluralities of computational elements and, a second level of the multi-level interconnection network having switching elements adapted for configuring corresponding computational elements in response to the first and second configuration information, i.e., the same first and second subsets of configuration information routed through the first level of the interconnection network. The Examiner stated in response 6. on page 3 of the final Office Action that a "nested or multi-tiered interconnection network is not being claimed, and unclaimed features cannot be used to overcome the prior art." Applicants respectfully submit that an interconnection network having configurability at multiple levels as claimed in Claim 1, 32, and 63 would be categorized by one skilled in the art as a multi-level, multi-tier interconnection network. Further, Applicants respectfully submit that Wise and Baxter, either combined or singly, do not disclose this interconnection network, i.e., multi-level interconnection

network, having a first level of interconnection network having routing elements and this separate second level of having switching elements, as claimed in Claim 1.

The Examiner stated in response 8 on page 4 of the final Office Action that "Wise is directed to the routing elements that routs addressed data packets or the frames (see the frame point generated as address in col. 6, lines 37-46)." In response, Applicants respectfully submit that no such teaching is found in Wise at col. 6, lines 37-46 which reads as follows: "It is also possible to locate the decoder in the preceding stage in order to pre-decode complex decoding processing and to alleviate critical path problems in the logic circuit. The elastic nature of the pipeline eliminates any centralized control since all the interworkings between the submodules are determined by a completely localized decision and, in addition, each submodule can autonomously perform data buffering and self-timed data-transfer control at the same time." Applicants respectfully submit that there is no teaching of routing elements that route addressed packets in the portion cited or elsewhere in Wise.

The Examiner states on page 10 regarding "a newly amended feature of Claim 1" that:

"As to the newly amended feature in claim 1, Wise also taught a plurality of routing elements (see buses in common block in fig.137) adapted to provide a selected operating mode (see the Y inputs in fig.137) of a plurality of operating modes by selectively routing data and a first and second subsets of configuration information (see cl and c3) to the corresponding first or second pluralities of computational elements (see carry adder and carry subtractor), and a second level of the interconnection network (see 2-input mux latch, see fig.137) comprising a plurality of switching elements (see 2-input mux latch) adapted to configure the plurality of heterogeneous computational elements (see carry adder and subtractor) for a first functional mode x[3,4] of a plurality of functional modes, in response to the first subset of configuration information (see configuration carry-save multiplier, carry save adder, carry save subtractor in the common block), and the interconnection network further operative to reconfigure the plurality of heterogeneous computational elements for a second functional mode (x[2,5]) of the plurality of functional modes, in response to the second sub set of configuration information (see carry save multiplier, carry save subtractor, carry save subtractor), the first functional mode (x[3,4]) being different than the second functional mode (x[2,5]);"

Applicants respectfully submit that FIG. 137 in Wise shows the overall IDCT Architecture for the IDCT transform algorithm shown in FIG. 136. (Col. 10, line 55-56, Col. 261, line 48 – 62, Col. 262, lines 14-19). Applicants respectfully submit that Wise describes FIG. 137 as "... illustrating the commonality between of the upper and lower sections" of the algorithm in FIG. 136. (Col. 262, lines 14-16). Applicants respectfully submit that FIG. 137 specifically shows the

lower portion of FIG. 136 where the "common block" in FIG. 137 indicates the portion which is the same, i.e., symmetry", in the upper and lower portion in FIG. 136. (Col. 261, lines 59-65, Col. 262, lines 14-20).

In response to remarks in the last response, the Examiner stated on page 4 of the final Office Action that "[W]ise taught selective routing of configuration by one part (y[7,6] at input) of the interconnection network [common box] provides a configuration used by another part (see output at x[2,5] of the network." Applicants respectfully submit that on page 10 of the final Office Action the Examiner identified the Y inputs in FIG. 137 as the "operating mode". i.e., "... operating mode (see the Y inputs in fig. 137)". Applicants respectfully submit that the Examiner has improperly identified the Y inputs as routing configuration, and also as an operating mode. Applicants respectfully submit that the Y inputs are neither routing configuration or an operating mode, but instead are pixel data inputs for the IDCT algorithm for the architecture shown in FIG. 137. Applicants respectfully submit that Wise the Y inputs in FIG. 137 are pixel values of the 8 x 8 block of pixel that are to be converted, i.e., transformed to the frequency domain. (Col. 259, lines 53-56, FIG. 137). Applicants respectfully submit that the Y inputs are two dimensional representations of the block of pixels, not an operating mode, as claimed in Claim 1. Even if the Y input were an operating mode, which Applicants do not agree that they are, there is no teaching of routing elements to provide these Y inputs in Wise.

Regarding "x[2,5], Applicants respectfully submit that the Examiner on page 11 of the final Office Action also identified "x[2,5]" as "a second functional mode". Applicants respectfully submit that.x[2.5]" is neither the "second functional mode" nor "another part" that uses configuration. Further, Applicants respectfully submit that "x[2,5]" is one of the outputs of the IDCT transformation, i.e., notating a pixel output in the frequency domain, and thus x[2,5]is not a functional mode. (See also Col. 261, line 66 – Col. 262, line 2 describing corresponding X outputs in FIG. 136 are "outputs of a single dimensional transform").

Further, Applicants respectfully submit that the Examiner has identified c1 and c3 in FIG. 137 as being "subsets of configuration information, as claimed in Claim 1. Applicants respectfully disagree. Applicants respectfully submit that "c1s" and "c3s" in FIGs. 137 in Wise are constant coefficients, identified as "coef" in the "Key" in FIGs. 136 and 137 for constant coefficient multipliers, indicated by the multiplier "line through arrow" symbol adjacent to the coefficient. (Col. 262, lines 25-27). Applicants respectfully submit that constant coefficients "c1s" and "c2s"

are not subsets of configuration information, as claimed in Claim 1. Moreover, Applicants respectfully submit that multipliers for a constant coefficient, i.e., constant coefficient multipliers, are not subsets of configuration information, as claimed in Claim 1. Applicants respectfully submit that, among other things, there is no routing of the constant coefficients or routing of the constant coefficient multipliers in Wise. The Examiner states that the buses in the "common block" in FIG. 137 are routing elements. Even if that were so, which Applicants do not agree that they are, there is no teaching in Wise of routing the constant coefficients on the bus. Applicants respectfully submit that Wise teaches that the "multipliers, all being constant coefficient rather than general purpose (reduces multiplier size and removes need for separate coefficient store)". (Col. 262, lines 25-27). Applicants respectfully submit that Wise teaches "constant coefficient" multipliers" are used and there is no routing of coefficient information or any other configuration information, i.e., no need to route coefficients since multipliers used are not general purpose multipliers that need to be made special purpose, but instead are special purpose "constant coefficient multipliers". Thus, Applicants respectfully submit that there is no routing of coefficients for "constant coefficient multipliers", i.e., the multipliers are already "constant coefficient". For these additional reasons, Applicants respectfully submit that Claim 1 is non-obvious based on Wise in view of Baxter.

Further, in response to remarks in the last response, the Examiner stated on page 4 of the final Office Action that "[a]s to g),Wise taught an interconnection network (see the common box in fig.137) comprising both routing elements (see each path) and switching elements (see 2-input mux switch in fig.137); (2) using routing elements for configuration (see each of the routing elements such as adder, subtractor, multiplier); different mixes or combinations of different computational elements forming independently configurable groups (see reconfigurable path adder, carry subtractor, and subtractor, see also the , reconfigurable path adder, carry adder, and subtractor in fig.137)". (Emphasis added). Applicants respectfully disagree. In addition to the Applicants' above reasons regarding Wise, Applicants respectfully submit further regarding the Examiner's remarks "as to g" above, that the Examiner has improperly identified an adder, for instance, as both a routing element for configuration, and a reconfigurable computational elements (see underlined section above). Applicants respectfully submit that the routing elements and computational elements are claimed as separate elements in Claim 1, i.e., routing elements selectively route data and configuration information to various computational elements, therefore, for at least that reason, the referenced teaching is improper. Applicants respectfully submit further, for the reasons given

above, that Wise does not teach the system having routing elements and configuration information, as claimed in Claim 1.

For all of the above reasons, Applicants respectfully submit that Claim 1 is non-obvious based on Wise in view of Baxter. Claims 2-5, 7-15, 7-15, 17, 18, 20, 21, 23, 27-31 and 115-128 depend from Claim 1 and are thus respectfully submitted as being non-obvious based on Wise in view of Baxter for the reasons given above for Claim 1.

Further, the Examiner stated on page 4 of the final Office Action that "[a]s to the "self routing" of data and configuration, no shelf (sic) routing has been reflected in to the claim, applicant is reminded that unclaimed features cannot be used to overcome the prior art." Applicants respectfully disagree. Applicants respectfully submit that Claims 123 includes "self-routing" of data packets and Claim 124 includes "self-routing" of the first and second subsets of configuration information. Applicants respectfully submit that none of the cited references teach or suggest, either singly or combined, the self-routing as claimed in Claims 123 and 124. It is respectfully submitted, therefore, that Claims 123 and 124 are non-obvious based on Wise in view of Baxter for this additional reason.

Newly added Claim 144 depends from Claim 1 and Claims 3, 7 and 8 depend from Claim 144, thus it is respectfully submitted that these claims are non-obvious based on Wise in view of Baxter for the reasons given above for Claim 1.

Newly added Claim 145 claims a system having an adaptive computing engine (ACE) integrated circuit and configuration information, i.e., a first set of configuration information. Claim 145 depends from Claim 1 and thus it is respectfully submitted that this claim is non-obvious based on Wise in view of Baxter for the reasons given above for Claim 1.

Regarding Claims 32 and 63, as stated above, Applicants have amended Claims 32 and 63 to further define the invention. As claimed in Claims 32 and 63, the first level of the interconnection network has routing elements. Claims 32 and 63 claim that the selectively routing of data and the first (and second) subsets of configuration information is through the first level of the interconnection network using the routing elements of the first level. Applicants respectfully submit that Claims 32 and 63 include an interconnection network which has a first and a second level, i.e., multi-level, also known as "multi-tiered" interconnection network. Applicants respectfully submit that Claims 32 and 63 are non-obvious based on Wise in view of Baxter for the reasons given above for Claim 1.

Claims 46, 48, 49, 51-58, and 62 depend from Claim 32 and are thus respectfully submitted as being non-obvious based on Wise in view of Baxter for the reasons given above for Claim 32.

Claims 64-76 and 78-85 depend from Claim 63 and are thus respectfully submitted as being non-obvious based on Wise in view of Baxter for the reasons given above for Claim 63.

Further regarding Claims 2 and 3 which depend from Claim 1, Applicants respectfully submit that Wise and Baxter, either combined or singly, do not teach or suggest a first second system operating mode, as claimed in Claim 2 or an additional second system operating mode, as claimed in Claim 3 Applicants respectfully submit that elements such as the carry-save multiplier, and carry-save adder identified as system operating modes by the Examiner are merely fixed circuit elements and are not operating system modes provided by routing elements adapted therefore, by selectively routing data and subsets of configuration information to corresponding pluralities of computational elements, as claimed in Claims 2 and 3. Applicants respectfully submit, therefore, that Claims 2 and 3 are non-obvious based on Wise in view of Baxter for this additional reason.

Further regarding Claim 4, Applicants respectfully submit that the Y[3,2] X[3,4] connection path in FIG. 137 in Wise, identified by the Examiner in an earlier Office Action (incorporated by reference by the Examiner in this final Office Action), is merely a path from a Y input (pixel) of the IDCT transform algorithm to an X output (transformed pixel), and has no teaching or suggestion of configuration information corresponding to system configuration capacity, as claimed in Claim 4. Applicants respectfully submit, therefore, that Claim 4 is non-obvious based on Wise in view of Baxter for this additional reason.

Further regarding Claim 5, Applicants respectfully submit that FIG. 137 in Wise, identified by the Examiner in an earlier Office Action (incorporated by reference by the Examiner in this final Office Action), has no teaching or suggestion of a plurality of sets of configuration information, as claimed in Claim 5. Applicants respectfully submit, therefore, that Claim 5 is non-obvious based on Wise in view of Baxter for this additional reason.

Further regarding Claim 7, Applicants respectfully submit the Examiner stated that Wise showed storage of configuration information (in an earlier Office Action incorporated by reference by the Examiner in this final Office Action). Applicants respectfully submit that even if Wise showed such storage, which Applicants do not agree it does, Claim 7 requires computational elements configured for a memory functional mode. Applicants respectfully submit that no

teaching has been shown in Wise of the step of configuring computational elements for a memory functional mode, as claimed in Claim 7.

Further regarding Claim 8, Applicants respectfully submit that Applicants are unable to find any rationale from the Examiner specifically for Claim 8 in either this final Office Action or the prior Office Action incorporated by reference.

Further regarding Claim 8, Applicants respectfully submit that Wise and Baxter, either combined or singly, do not teach or suggest a memory which is a configuration of computational elements in response to the first set of configuration information, as claimed in Claim 8. Applicants respectfully submit, therefore, that Claim 8 is non-obvious based on Wise in view of Baxter for these additional reasons.

Further regarding Claim 9, the Examiner referred to the storing of configuration information in a machine readable medium, Applicants respectfully submit that Claim 9 includes transferring configuration to the system from a machine readable medium and thus the Examiner has not directed the rejection to what is claimed in Claim 9. Applicants respectfully submit that Wise and Baxter, either combined or singly, do not teach or suggest transferring configuration information as claimed in Claim 9. Applicants respectfully submit, therefore, that Claim 8 is non-obvious based on Wise in view of Baxter for these additional reasons.

Further regarding Claims 10 and 11, the prior Office Action incorporated by reference the Examiner referenced Col. 4 in Wise, lines 13-14, and 21-23, Applicants respectfully submit that these portions of Wise refers to transmitting pixels of a video image (see Col. 4, lines 13-21) not transmitting configuration information, and there is no suggestion that pixels are configuration information. Applicants respectfully submit, therefore, that Claims 10 and 11 are non-obvious based on Wise in view of Baxter for this additional reason.

Further regarding Claims 12, 43, 73, and 123, these claims require that the first set of configuration information is embodied as a plurality of discrete information data packets. Regarding packet routing, the Examiner stated on page 3 of the final Office Action that "Baxter clearly taught transfer of data as packet-based messages (see col. 32, lines 29-33). Applicants respectfully disagree. Applicants respectfully submit that Baxter states in the portion cited by the Examiner, referring to FIG. 13, that "[p]referably, the common interface and control unit 302 transfers each command and any related data as a set of packet-based messages in a conventional manner, where each message includes the target interconnect address and the command code."

Applicants respectfully submit that the "common interface and control unit" 302 is shown in FIG. 13 which shows an embodiment of the I/O T-machine in Baxter (See Col., 31, lines 34-35, and FIG. 1). As seen in FIG. 1, the I/O T-machine of FIG. 13 is not included in the general purpose interconnect matrix (GPIM) 16, but is instead separate. Applicants respectfully submit further that Baxter does not teach, suggest, or show the "common interface and control unit" 302 sending data to the GPIM 16. Thus, Applicants respectfully submit that Baxter does not teach any packet routing in interconnect matrix GPIM 16. Thus, it is respectfully submitted that, even if GPIM 16 in Baxter was an interconnection network as claimed in Claim 1, which Applicants say it isn't, Baxter does not teach or suggest packet routing through an interconnect network routing elements in GPIM 16 in FIG. 1 and thus, does not teach or suggest routing elements in an interconnection network as claimed in Claim 1.

Further, the Examiner stated in response 8 on page 4 of the final Office Action that "Wise is directed to the routing elements that routs (sic) addressed data packets or the frames (see the frame point generated as address in col. 6, lines 37-46)." In response, Applicants respectfully submit that, as stated above, no such teaching is found in Wise at col. 6, lines 37-46. It is respectfully submitted that Wise does not teach routing elements that route addressed packets in the portion cited or elsewhere in Wise. Applicants respectfully submit, therefore, that Claims 12, 43, 73, and 123 are non-obvious based on Wise in view of Baxter for these additional reasons.

Further regarding Claims 27-29, Applicants respectfully submit that there is no teaching or suggestion in Wise and Baxter, either singly or combined, of computational elements configured to generate a request for configuration information, as claimed in Claims 27-29. Moreover, it is respectfully submitted that there is no teaching or suggestion in Wise and Baxter, either singly or combined, of computational elements configured to generate a request for configuration information for a system operating mode, as claimed in Claims 27-29. Further, Applicants respectfully submit that there is no teaching or suggestion in Wise and Baxter, either singly or combined, of computational elements configured to determine a system configuration capacity and for determining the system configuration capacity prior to utilizing configuration information to configure for a system operating mode, as claimed in Claim 28. Applicants respectfully submit, therefore, that Claims 27-29 are non-obvious based on Wise in view of Baxter for these additional reasons.

Further regarding Claim 31, Applicants respectfully submit that there is no teaching or suggestion in Wise and Baxter, either singly or combined, of the first plurality of computational elements operating in a first functional mode while the second plurality of computational elements are being configured for the second functional mode. Applicants respectfully submit that Claim 31 is non-obvious based on Wise in view of Baxter for this additional reason.

Response to Rejection of Claims 16, 19, 22, 24-26, 47, 50, 77, and 100 under 35 U.S. C. § 103(a)

The Examiner has rejected Claims 16, 19, 22, 24-26, 47, 50, 77, and 100 under 35 U.S.C. § 103(a) as being obvious based on Wise in view of Baxter and in view of Lee et al.

Claim 100 has been canceled herein.

Claims 16, 19, 22, and 24-26 depend from Claim 1, Claims 47 and 50 depend from Claim 32 and Claim 77 depends from Claim 63 and are respectfully submitted as being non-obvious based on Wise in view of Baxter for the reasons given for Claims 1, 32 and 63, respectively, above. Applicants respectfully submit that Lee does not teach the system for adaptive configuration as claimed in Claims 1, 32, and 63. Thus, it is respectfully submitted that Claims 16, 19, 22, 24-26, 47, 50, 77, and 100 are non-obvious based on Wise in view of Baxter in view of Lee for the above reasons.

Further, regarding Claims 16, 19, 22, 47, 50, and 77, the Examiner stated in the prior Office Action that Wise did not specifically show the single bit stream of the configuration information as claimed. The Examiner stated that Lee disclosed a single bit stream of configuration information "see the conversion into a single ended signal in col. 8, lines 46-51)". The Examiner concluded that it would be obvious to one of ordinary skill in the art to use Lee in Wise for including the single bit stream because it would provide the ability to adapt to different type of configuration information. Applicants respectfully disagree.

Applicants respectfully submit that the paragraph in Lee with the portion the Examiner cited in Lee states: "The audio path is the other important holster interface. The holster electronics performs scaling, filtering, and single ended to differential conversion (SE-DIFF) as required to meet the interface requirements of the system and holster peripheral inter-faces. For an outgoing, analog AMPS cellular voice/data call, differential inputs, AUDIN+ and AUDIN-, are channeled from a tablet internal modem card, converted to a single-ended signal with the proper voltage level,

and output to the Audio to Mobile Station (ATMS) pin of the CT-700. ..." (Col. 8, lines 43-52). (Emphasis added.) Applicants respectfully submit that the teaching in Lee of channeling differential analog audio inputs of an outgoing analog cellular call, converted to a single ended signal, does not teach or suggest configuration information, or commingling configuration information with data to form a singular bit stream. Applicants respectfully submit that the Examiner has impermissibly used the hindsight of the present invention to argue that it would be obvious to one skilled in the art to combine the specific teaching In Lee regarding channeling differential analog audio inputs of an outgoing analog cellular call, with Wise and Baxter. Applicants respectfully submit further that there would be no motivation to combine the analog cell phone audio related teaching in Lee with the IDCT transform teaching in FIG. 137 that the Examiner suggests from Wise; and even if there was such motivation, Applicants respectfully submit that the proposed combination does not teach commingling configuration with data for a system for adaptive configuration having configurability at multiple levels of an interconnection network as claimed in Claims 16, 19, 22, 47, 50, and 77, for the reasons stated above.

Further, the Examiner stated in his response to arguments at 8 on page 4 of the final Office Action that "[a]s to e), Lee taught upon occurrence determined by software, certain states can be entered into transitions, such as the standby, suspend, and awaken, (see col.11, lines 8-22). Therefore, Lee 's system is configurable and adaptive." Applicants respectfully submit that Lee teaches standby, suspend, and awaken in the context of a system having a radio transceiver 13, a holster 12 and a tablet 11 (see FIG. 1) for saving power etc., i.e., "in standby, the tablet LCD will remain darkened to save power" (Col. 11, line 16 and Col. 10, line 54 – Col. 11, line 22). Applicants respectfully submit that there would be no teaching, suggestion or motivation to combine this teaching of standby, suspend and awaken in Lee with the other teaching of Lee that the Examiner referenced (regarding channeling differential analog audio inputs of an outgoing analog cellular call converted to a single ended signal) with an IDCT transform architecture in Wise that the Examiner has referenced, or the system in Baxter, and even if there were, Applicants respectfully submit that it does not teach or suggest the systems and methods claimed in Claims 16, 19, 22, 47, 50, and 77.

Applicants respectfully submit that Claims 16, 19, 22, 47, 50, and 77 are non-obvious based on Wise in view of Baxter in view of Lee for these additional reasons.

Response to Rejection of Claims 59-61, and 86-88 under 35 U.S. C. §103(a)

Claims 59-61, and 86-88 were rejected under 35 U.S.C. 103(a) as being obvious based on Wise in view of Baxter and in view of Cohen et al.

Claims 59-61 depend from Claim 32 and Claims 86-88 depend from Claim 63 and are respectfully submitted as being non-obvious based on Wise in view of Baxter for the reasons given for Claims 32 and 63, respectively, above. Applicants respectfully submit that Cohen, et al. teaches electronic identifiers for network terminal devices and does not teach the methods for adaptive configuration as claimed in Claims 32 and 63. Thus, it is respectfully submitted that Claims 59-61 and 86-88 are non-obvious based on Wise in view of Baxter in view of Cohen, et al.

Further, the Examiner stated in the earlier Office Action incorporated by reference by the Examiner in this final Office Action that "neither Wise nor Baxter specifically showed the decrypting the configuration, nor the authorization to receive the configuration as claimed". The Examiner stated that "Cohen taught a decryptor and authorization of the configuration (see fig. 2, col. 8, lines 5-52)". The Examiner concluded that it would have been obvious to use Cohen and Wise for including the decrypting and authorization of the configuration information as claimed "... because the user of Cohen could provide Wise the ability to accept the configuration information based on a predetermined set of requirements and restrictions, therefore increasing system security in Wise." Applicants respectfully disagree.

Firstly, Applicants respectfully submit that Cohen, et al. does not have a Col. 8, the last column is Col. 6. Applicants request that the Examiner provide his reference to Cohen in the next action. Regarding FIG. 2, Cohen, et al. states that "[a]s shown in FIG. 2, the chip 100 also includes an encryption engine 140 and a tamper-proof memory 160. The generated private key is stored in the tamper-proof memory 160, which is also interfaced with the encryption engine 140, and is used by the encryption engine for decrypting received messages from the data network. Memory 160 is tamper-proof--that is, any unauthorized attempt to change the private key or to make adjustments thereto will render the IC 100 inoperable; this further enhances the security of the electronic identifiers." (Col. 5, line 15-24). Applicants respectfully submit that Cohen, et al. teaches a network interface integrated circuit (IC) 100 for use in applications such as a cable television set-top box to prevent theft of service, i.e., "[a]n illustrative and currently preferred embodiment of the present invention will be discussed in the context of terminal devices connected to a video information delivery system such as a so-called Video On Demand (VOD) or other pay-subscriber

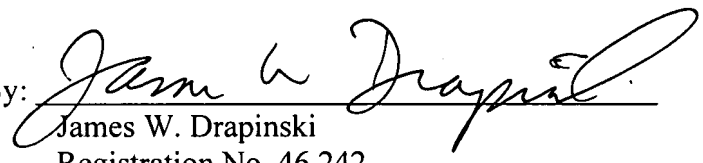
data systems." (Col. 2, lines 41-46). Applicants respectfully submit that there is no teaching or suggestion of configuration information, as claimed in Claims 32 and 63, in Cohen, et al. Further, Applicants respectfully submit that there would be no suggestion to combine an IC designed for a network interface with Wise at least because Wise has no mention of network security issues related to the video decompression apparatus including IDCT transform algorithms in Wise. Applicants respectfully submit, therefore, that for this additional reason, Claims 59-61 and 86-88 are non-obvious based on Wise in view of Baxter in view of Cohen, et al.

Conclusion

For the above reasons, Applicants respectfully submit that all pending claims, Claims 1-5, 7-57, 59-80, 82-88, 115, 116, 118-121, 123-128, 144, and 145 in the present application are allowable. Such allowance is respectfully solicited.

If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (415) 984-8200.

Respectfully submitted,

By: 
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